Attachment 004
20 pages
AMC CODE: 1G

SECTION C:

TDPL: 442-726 (EA-PRF-2170) DATED: 11/29/00 END ITEM: Chemical Agent Monitor

NSN: 5999-01-383-2792 PART: 442-726 (EA-PRF-2170)

NOMEN: Contact Assembly, Electrical PRON(s): C40AA002 (C11AAUXX)

See attached Statement of Work (SOW) for performance requirements.

I. The following engineering exceptions apply to TDPL 442-726, which is for reference only:

1. Add L-P-378, "PLASTIC SHEET AND STRIP, THIN GAUGE, POLYOLEFIN" to specifications and standards section.

II. The following engineering exceptions apply to TDPL EA-PRF-2170:

1. Add the following NORs:

Z16-1512

2. Delete drawings:

442-033, 5-15-17030, 442-022

3. Add drawings:

442-1033

III. Government Furnished Equipment:

Chemical Agent Monitor (NSN 6665-01-199-4153) and associated TM (TM 3-6665-331-10) or Improved Chemical Agent Monitor (NSN 6665-01-357-8502) and associated TM (TM 3-6665-343-10).

IV. Mylars will not be furnished.

NAME (POC): Phillip Thompson OFFICE: AMSSB-RSO-MAD (RI)

PHONE: DSN 793-1933 MYLARS REQUIRED: N

DATE: 17 October 00

RESUBMITTAL: N RATIONALE:

CLIN 0002

AMC CODE: 1G

SECTION C:

TDPL: 442-726 (EA-PRF-2170) DATED: 11/29/00 END ITEM: Chemical Agent Monitor

NSN: 5999-01-383-2792 PART: 442-726 (EA-PRF-2170)

NOMEN: Contact Assembly, Electrical PRON(s): C40AA002 (C11AAUXX)

V. The following warning statement applies to all drawings, parts lists listed on TDPL 442-726 and EA-PRF-2170:

Warning - This TDP contains technical data whose export is restricted by the Arms Export Control Act (Title 22, U.S.C. sec 2751, et seq.) or the Export Administration Act of 1979, as amended, Title 50, U.S.C., App 2401 et seq. Violation of these export laws are subject to severe criminal penalties. Disseminate in accordance with provisions of DOD Directive 5230.25.

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1. Export of information contained herein, which includes, in some circumstances, release to foreign nationals within the United States, without first obtaining approval or license from the Department of State for items controlled by the International Traffic in Arms Regulation (ITAR), or the Department of Commerce for items controlled by the Export Administration Regulations (EAR), may constitute a violation of law.
2. Under 22 U.S.C. 2778 the penalty for unlawful export of items or information controlled under the ITAR is up to 2 years imprisonment, or a fine of $100,000, or both. Under 50 U.S.C., Appendix 2401, the penalty for unlawful export of items or information controlled under the EAR is a fine of up to $1,000,000, or five times the value of the exports, whichever is greater; or for an individual, imprisonment of up to 10 years, or a fine of up to $250,000, or both.
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6. The US Government assumes no liability for loss, damage, or injury resulting from manufacture or use for any purpose of any product, article, system, or material involving reliance upon any or all technical data furnished in response to the request for technical data.
7. If the technical data furnished by the Government will be used for commercial manufacturing or other profit potential, a license for such use may be necessary. Any payments made in support of the request for data do not include or involve any license rights.
8. A copy of this notice shall be provided with any partial or complete reproduction of these data that are provided to qualified US contractors.

NAME (POC): Phillip Thompson OFFICE: AMSSB-RSO-MAD (RI)

PHONE: DSN 793-1933 MYLARS REQUIRED: N

DATE: 17 Oct 00

RESUBMITTAL: N RATIONALE:

METRIC

EA-PRF-2170A
16 January 2001
SUPERSEDING
EA-PRF-2170
14 January 1999

EDGEWOOD CHEMICAL BIOLOGICAL CENTER PERFORMANCE PURCHASE DESCRIPTION

CONTACT ASSEMBLY, BATTERY, CHEMICAL AGENT MONITOR

1. SCOPE

1.1 Scope. This specification covers requirements and verification procedures for one type of Chemical Agent Monitor (CAM) battery contact assembly.

2. APPLICABLE DOCUMENTS.

2.1 General. The documents listed in this section are specified in Sections 3 and 4 of this specification. This section does not include documents cited in other sections of this specification or recommended for additional information or as examples. While every effort has been made to ensure completeness of this list, document users are cautioned that they must meet all specified requirements documents cited in sections 3 and 4 of this specification, whether or not they are listed.

2.2 Government documents.

2.2.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the issue of the Department of Defense Index of Specifications and Standards (DoDISS) and supplement thereto, cited in the solicitation (see 6.2).

PERFORMANCE SPECIFICATION SHEETS

MIL–PRF–49471/11(ER) - Battery, Non–Rechargeable, High Performance, BA–X800/U

(Copies are available from Technical Director, U.S. Army Edgewood Chemical Biological Center, ATTN: AMSSB–REN–SE, Aberdeen Proving Ground, MD 21010–5424.)

FSC 6665

2.2.3 Other Government documents, drawings, and publications. The following other Government documents, drawings, and publications form a part of this document to the extent specified herein. Unless otherwise specified, the issues are those cited in the solicitation.

PURCHASE DESCRIPTIONS

EA–C–1793 – Chemical Agent Monitor

DRAWINGS

5–15–17020 – ICAM Interconnection Diagram
5–15–19258 – Battery Contact Assembly

It is strongly recommended that suppliers refer to the drawings and/or documents listed in section 6.7 for guidance to ensure that the interface requirements are met.

(Copies of these drawings are available from the Technical Director, U.S. Army Edgewood Chemical Biological Center, ATTN: AMSSB–REN–SE, Aberdeen Proving Ground, MD 21010–5424).

2.3 Order of precedence. In the event of a conflict between the text of this document and references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 First article. When specified (see 6.2), a sample shall be subjected to first article inspection in accordance with 4.3.

3.2 Interfaces.

3.2.1 Interface with CAM. Battery contact assembly shall utilize the lugs cast into the inner battery compartment of the monitor case and mount in the same configuration as shown in the monitor case assembly drawing. The contact shall accommodate the 6–volt lithium sulfur dioxide battery (P/N BA–5800/U or equivalent) positive/negative connections (Figure 1). The battery contact cable 2–way connector shall interface with the optoelectronic display 2–pin connector per the interconnection diagram (DWG 5–15–17020). The cable shall be flexible or coiled to provide for the prevention of pinching or binding during installation/removal of the monitor module assembly. Refer to the Battery Contact Assembly (DWG 5–15–19258) interface control drawing for additional required interface dimensions.

3.2.2 Out–gassing. When the pump is heated to 75• ± 3•C, it shall not outgas material that will cause degradation of the CAM performance. A reduction by more than 25 millivolts (mV) direct current (dc) of the reactant ion peak (RIP) height in a CAM ŝ head amplifier output or the addition of secondary peaks in the wave form shall be unacceptable CAM performance. Head amplifier peak height output (H) is defined in figures 2 and 3.

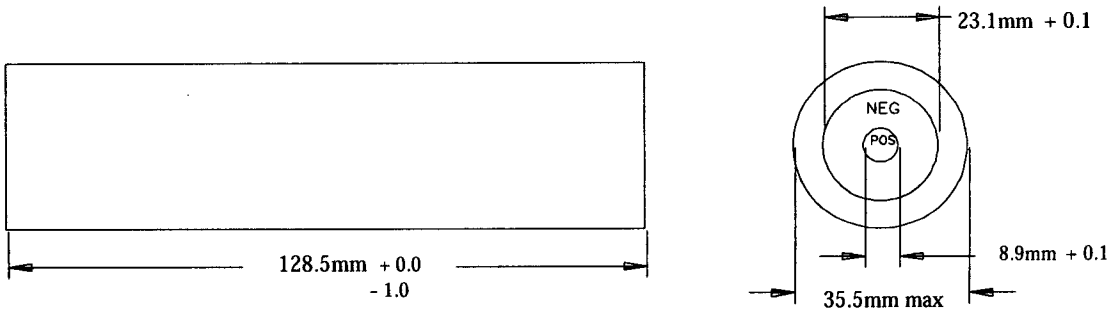

FIGURE 1. Battery configuration and dimensions

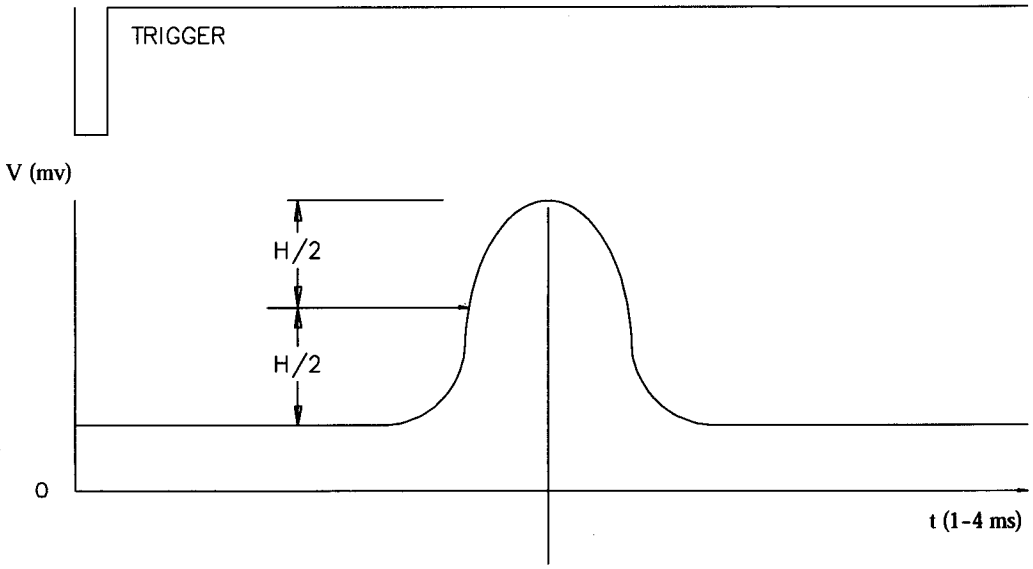

FIGURE 2. G–Mode head amplifier output

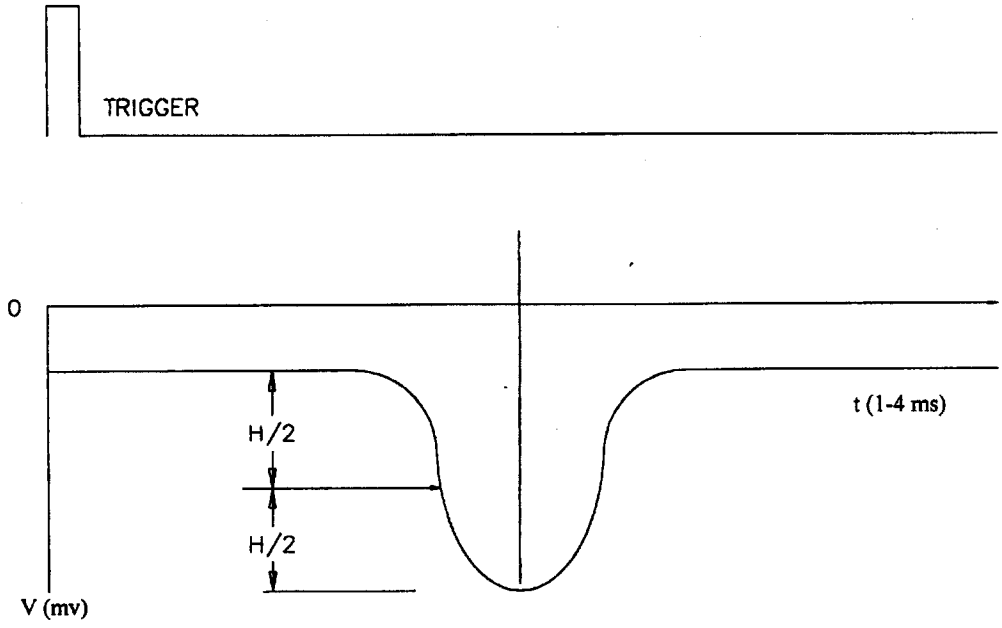

FIGURE 3. H-mode head amplifier output

3.2.3 Dimensions. The battery contact assembly shall conform to the dimensions of the battery compartment of the monitor case assembly and accept the dimensions (Figure 1) of the battery and battery retainer as well as the battery electrical contact configuration as specified in 3.2.1. The contact cable assembly shall have a minimum uncurled/stretched length of 216 millimeters (mm) to provide for installation/removal. Refer to MIL–PRF–49471/11(ER) if additional dimensional properties of the CAM battery are required.

3.2.4 Materials. The battery contact assembly shall be fabricated from compatible materials, inherently corrosion resistant or treated to provide protection against the various forms of corrosion and deterioration that may be encountered in its application and storage.

3.3 Operational needs.

3.3.1.1 Insulation resistance. With a voltage of 500 ± 60 V dc applied between the battery contact 2–way connector positive (+) and negative (–) terminals, the insulation resistance shall be greater than 100 megohms.

3.3.1.2 Continuity. The resistance between the positive (+) cable 2–way connector terminal and the battery positive contact shall be less than 50 milliohms. The resistance between the negative (–) cable 2–way connector terminal and the battery negative contact shall be less than 50 milliohms.

3.3.1.3 Stability. The battery contact design shall provide the spring force necessary for ensuring continuous reliable contact with the battery positive and negative contacts. The spring shall travel 1.80 ± 0.20mm when 5.00 ± 0.25 pounds–of–force is applied.

3.4 Environment.

3.4.1 Operation after drop. With the battery contact and a dummy battery installed in the CAM, the battery contact shall withstand a drop four times from a height of 30 inches onto two inches of plywood backed by concrete while at a temperature of −25• ± 3°C. The CAM shall be dropped with a battery and without a battery. There shall be no distortion to the battery contact areas and there shall be no movement of the battery contact within its mounting.

3.4.2 Operation at low temperature after cold vibration. Battery contact shall remain in its mounting configuration within the CAM and maintain resiliency while at a temperature of −25° ± 3°C after being subjected to vibration (0.1 g^2/Hz, 20 to 500 Hz, 2 hours each axis) while conditioned to and maintained at a temperature of −31° ± 3°C. The battery contact shall then be visually inspected for movement from mounting and any wear or distortion in the battery contact areas.

3.5 Support and ownership.

3.5.1 Reliability. The battery contact shall have a service life of at least 5 years. The contacts shall retain their shape after installing/removing the battery 100 times, and the contact cable connectors/terminals shall remain attached to the cable/contact after installing/removing the contact from the CAM ten times.

3.5.2 Shelf life. The battery contact shall have a shelf life of not less than 10 years.

3.5.3 Safety The battery contact assembly shall be free of burrs, sharp edges or any other characteristics which would be hazardous to the user.

3.6 Government−loaned property. (See 6.3). The following equipment shall be loaned for testing in accordance with this specification.

1. Chemical Agent Monitor (CAM) and associated technical manuals.

4. VERIFICATION

4.1 Verification alternatives. Alternative test methods, techniques, or equipment, including the application of statistical process control, tool control, or cost effective sampling procedures may be proposed. Acceptable alternative verification approaches shall be identified in the contract.

4.2 Verification methods. The methods of verification of the requirements of this specification, as specified in 4.3, are the following:

a. Analysis − Review of data produced as the result of analytical computations.
b. Certification − Written statement attesting to the conformance to a predefined general requirement.
c. Examination − Visual examination of a part and/or its respective installation, or examination of associated drawings, specifications, or purchase orders.
d. Demonstration − An uninstrumented, non−quantitative test where success is determined on the basis of observation alone.
e. Test − The exercising of part, unit, or combinations thereof to obtain measured quantitative results.

4.3 Classification of inspections. Two inspection classifications have been identified for verification of performance requirements: first article inspection, and conformance inspection. First article inspection is normally used to verify that manufactured unit(s) meet the requirements of section 3. Conformance inspection is normally used for each production–line unit prior to its delivery to, and acceptance by, the government. Conformance inspection verifies that the manufactured unit(s) meet selected critical requirements of section 3. A verification matrix is provided in Table I which relates the section 3 requirement to the verification method and the details of the inspections to be performed for each of the inspection classifications.

4.3.1 First article inspection. When specified in the contract (see 6.2), a sample shall be subjected to first article inspection. First article inspection shall be performed on eight production representative units when a first article sample is required (see 3.1). This inspection shall include all the tests identified by an "X" in column 4 in Table I. Column 3 in Table I identifies the applicable verification method paragraph number. The presence of one or more defects shall be cause for rejection.

4.3.2 Conformance inspection. All production items shall be subjected to conformance inspections and shall include the tests identified by an "X" in column 5 in Table I. Column 3 in Table I identifies the applicable verification method paragraph number. The contractor shall be responsible for the performance of the conformance inspection. Presence of one or more defects shall be cause for rejection.

TABLE I. Verification inspection

Requirement	Requirements Paragraph	Verification Paragraph	First Article Inspection	Conformance Inspection
Interface with CAM	3.2.1	4.4.1	X	
Out-gassing	3.2.2	4.4.2	X	
Dimensions	3.2.3	4.4.3	X	
Materials	3.2.4	4.4.4	X	
Insulation Resistance	3.3.1	4.5.1	X	X
Continuity	3.3.2	4.5.2	X	X
Stability	3.3.3	4.5.3	X	
Drop	3.4.1	4.6.1	X	
Low Temperature/Cold Vibration	3.4.2	4.6.2	X	
Reliability	3.5.1	4.7.1	X	
Shelf Life	3.5.2	4.7.2	X	
Safety	3.5.3	4.7.3	X	

4.4 Interfaces. Interface requirements shall be verified as follows:

4.4.1 Interface with CAM. Install the battery contact into the battery compartment of the monitor case and ensure that the battery contact seats and stays in place on the cast lugs. Ensure that the battery contact cable can be pulled through the port in the monitor case and that the 2–way connector interfaces with the 2–pin connector on the optoelectronic display. Verify that the contact cable has not detached from the connector or contact and that the cable cannot be bound or pinched when the monitor module is installed/removed in the case. Install the battery and battery retainer and power–up the CAM to ensure operation.

4.4.2 Out–gassing. Pre–heat an oven, with a maximum internal volume of two cubic feet, to 75•± 3•C. Operate the oven without air exchange for the duration of his test. Connect an

oscilloscope, capable of performing 16 averages, to the CAMs rear connector pins D (signal) and B (0V). Pin G may be used as an external trigger for the oscilloscope. Sample the oven air for one minute utilizing an operational CAM fitted with a filtered nozzle standoff. Ensure there are no secondary peaks present in the spectrum. Measure and record the head amplifier waveform height in both the G and H modes using 16 averages. The CAM used to monitor the testing shall conform to the EA–C–1793 Function (3.12.2), Head amplifier (3.12.6c), and Confidence Sample (3.12.9) requirements (see 6.4). Place the pumps in the oven and heat at 75° ± 3°C for 30 minutes. Sample the oven air in both G and H modes. Ensure there are no secondary peaks present in the spectrum. Measure and record the head amplifier waveform height in both the G and H modes using 16 averages. Ensure that the peak heights are within 25 millivolts of the values recorded when the oven was heated and empty.

4.4.3 Dimensions. Ensure by measurement that the battery contact dimensions are as specified in 3.2.3 and meet the verification characteristics set forth in 4.4.1.

4.4.4 Materials. Verify by analysis that the materials meet the requirement of 3.2.4.

4.5 Operational needs.

4.5.1 Insulation resistance. Apply the required voltage between the battery contact 2–way connector positive and negative terminals and measure the resistance.

4.5.2 Continuity. Measure the resistance between the positive (+) terminal of the 2–way connector and the battery positive contact. Measure the resistance between the negative (–) terminal of the 2–way connector and the battery negative (–) contact.

4.5.3 Stability. Install the battery contact assembly into a working CAM. Install a new battery into the CAM battery compartment and then place the battery retainer into position over the battery without engaging the bayonet mounts. Slightly push the battery retainer toward the battery until the force of the spring is felt. Measure the gap between the battery retainer and the monitor casing. Measure the force required to seat the battery retainer flush with the monitor case. Ensure that the nozzle protective cap and protective dust cap are in place. Place the CAM on a flat surface. Turn on the CAM. Tap the CAM with enough force to move it one–inch and ensure that the CAM does not reset. Repeat in at least four different locations on the CAM to include the battery retainer, nozzle protective cap, and the left and right sides of the CAM.

4.6 Environment.

4.6.1 Operation after drop. Install the battery contact into the CAM. Ensure that a dummy battery is in the battery compartment and that the nozzle protective cap, protective dust cap, and battery retainer are in position. Place the CAM into an environmental chamber and lower the temperature to −25•± 3•C. Remove the CAM from the chamber and immediately drop the CAM on the nozzle protective cap. Remove the battery retainer and battery. Inspect the battery contact for any movement from the monitor case cast lugs, and inspect the battery contact for any distortion. Install the dummy battery, place the CAM back into the chamber until the required temperature is again achieved and drop the CAM on the battery retainer. Remove the cap and battery and repeat the inspection. With the battery removed, place the CAM back into the environmental chamber and lower to the required temperature. Remove the CAM from the chamber, ensure that the protective dust cap is installed on the rear electrical connector, and immediately drop the CAM on the protective dust cap. Inspect the battery contact to ensure that no movement of the contact from the cast lugs has occurred. Lower the CAM temperature again and drop the CAM, without the battery, on the battery retainer. Repeat the inspection procedure.

4.6.2 Operation at low temperatures after cold vibration. Install the battery contact in the CAM. Place the CAM in an environmental vibration chamber and lower the internal chamber temperature to −31• ± 3•C. Condition the CAM to the required temperature for not less than 4 hours. Subject the CAM to the required vibration environment while maintaining the required chamber temperature. Raise the internal chamber temperature to −25• ± 3•C and allow the CAM to remain at that temperature for not less than 4 hours. Raise the internal chamber temperature to room temperature, allowing battery contact temperature to stabilize. Visually inspect the battery contact to ensure no movement from the monitor case cast lugs and for no distortion or loss of resiliency in the battery positive and negative contacts.

4.7 Support and ownership.

4.7.1 Reliability. Install/remove the battery contact from the battery compartment ten times. Ensure that the contact remains solidly mounted to the cast lugs in the monitor case and the connector and terminals remain securely connected to the battery contact and cable. Install/remove the battery 100 times. Ensure the contacts retain their resiliency and show no signs of distortion.

4.7.2 Shelf life. Analysis of parts and materials shall be provided which demonstrate that the battery contact will comply with the performance specifications after 10 years of storage.

4.7.3 Safety. Verify by visual inspection that the battery contact meets the requirement of 3.5.3.

5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). Packaging requirements are maintained by the Inventory Control Points packaging activity within the Military Department of Defense Agency, or within the Military Departments System Command. Packaging data retrieval is available from the managing Military Department or Defense Agency automated packaging files, CD−ROM products, or by contacting the responsible packaging activity.

6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory).

6.1 Intended use. This battery contact is intended for use with the Chemical Agent Monitor (CAM).

6.2 Acquisition requirements. Acquisition documents should specify the following:

a. Title, number, and date of this specification.
b. Issue of DoDISS to be cited in the solicitation , and if required, the specific issue of individual documents referenced (see 2.2.1).
c. Packaging requirements (see 5.1).
d. The availability of advisory technical information (see 6.6).
e. The availability of necessary Government loaned property (see 6.3 and 6.5).
f. First article inspection:
   1. Time allowed for contractor submission of samples for government test and evaluation after award of contract when testing is performed by the government.
   2. Name and address of test facility and shipping instructions when testing is performed by the government.
   3. Time required for the government to notify the contractor whether or not to proceed with production.
g. Conformance inspection methods and sampling.

6.3 Government–loaned property. The contracting officer should arrange to furnish the property listed in 3.6.

6.4 EA–C–1793. Citing the specified requirements from this detailed purchase description is for the purpose of establishing the minimum requirements of the CAM to be used to monitor the Out–gassing. As such, its sole purpose is to augment the test method. The limited application of this document as part of the test method makes the need for a waiver for a detailed document unnecessary.

6.5 License for handling radioactivity. The contracting officer should provide the contractor with the requirements for licensing provisions in the handling of the radioactive component (nickel 63).

6.6 Advisory Technical Data Package (TDP) or drawings. The contracting officer should arrange to provide the following documents and any other advisory information to the contractor. These are for reference purposes only. The top drawing for contact assembly advisory TDP is 442–726.

PERFORMANCE PURCHASE DESCRIPTION

EA–C–1793	–	Chemical Agent Monitor
EA–PRF–1577	–	Display, Optoelectronic (CAM)
EA–PRF–2174	–	Cap, Battery

DRAWINGS

5–15–17015	–	Case Assembly, Monitor (ICAM)
5–15–17021	–	Display, Optoelectronic (ICAM)
442–023	–	Case Assembly, Monitor (CAM)
442–1033	–	CAM Interconnection Diagram
442–061	–	Case, Monitor
442–484	–	Connector, 2–Pin
442–675	–	Cap, Battery
442–726	–	Contact Assembly

6.7 Subject term (key word) listing.

Contact
Battery retainer
Out–gassing

Preparing activity:

Technical Director
U.S. Army Edgewood Chemical Biological Center
ATTN: AMSSB–REN–SS
Aberdeen Proving Ground, MD 21010–5424

Statement of Work
Contact Assembly, Electrical f/ Chemical Agent Monitor (CAM)

C.1.0 Scope

The contractor shall manufacture the Contact Assembly, Electrical in strict compliance with Performance Purchase Description EA-PRF-2170.

C.2.0 Applicable Documents

EA-PRF-2170
TDP 442-726 (reference only)
MIL-PRF-49471/11
EA-C-1793
5-15-17020
5-15-19258
442-033
MIL-STD-2073-1
MIL-STD-810E
ANSI/ASQC Q90 (ISO 9000)
ANSI/ASQC Q91 (ISO 9001)
ANSI/ASQC Q94 (ISO 9004)
ASTM D 4919

C.3.0 Requirements

The contractor, as an independent contractor and not as an agent of the Government, shall provide the necessary services, personnel, labor, facilities, materials, supplies, and equipment (except those specifically designated as Government furnished equipment/material) to perform the following:

C.3.1 Manufacturing

C.3.1.1 Contact Assembly, Electrical. The contractor shall manufacture electrical contact assemblies (including First Article) in strict compliance with Performance Specification EA-PRF-2170, 5-15-17020, 5-15-19258 and all of the documents cited therein, respectively. The contractor shall manufacture all items using the same manufacturing methods, materials, tooling, test equipment, test procedures and facilities planned for use in production.

C.3.1.2 Government Furnished Equipment. The Government shall furnish one (1) Chemical Agent Monitor and its associated technical manuals as required by EA-PRF-2170 if the successful bidder has or can obtain the required NRC license.

C.3.2 Engineering Management

C.3.2.1 Engineering Data and Specifications. The contractor shall establish, maintain, and make available for Government review at the contractor's facility all engineering drawings, parts lists, product specifications, manufacturing process procedures, unique quality control procedures, packaging instructions, and lists of suppliers and manufacturers used by the contractor to manufacture the electrical contact assembly.

C.3.2.2 Final TDP Delivery. The contractor shall copy and submit all engineering drawings, parts lists, product specifications, manufacturing process procedures, unique quality control procedures, packaging instructions, and lists of suppliers and manufacturers used by the contractor to manufacture the electrical contact assemblies.

C.3.2.3 Configuration Management.

C.3.2.3.1 Configuration Management Plan (CMP). The contractor shall implement and maintain a configuration management plan throughout the life of the contract. MIL-STD-973 contains relevant configuration management information that may be useful to the contractor. The contractor shall obtain the written approval of the PCO prior to the implementation of the CMP and any subsequent changes.

C.3.2.3.2 Requests for Deviation, Requests for Waiver, Engineering Change Proposal and Notice of Revision.

C.3.2.3.2.1 The contractor shall prepare and submit Requests for Deviation and Requests for Waiver for any performance requirements.

C.3.2.3.2.2 The Government will maintain formal configuration control of all performance specifications and configuration drawings referenced in Section C.3.1.

C.3.2.3.2.3 All engineering changes against items under Government Configuration Control shall be documented on an engineering change proposal and notice of revision, in Government or contractor format, and submitted to the Government for approval in accordance with the approved CMP.

C.3.2.3.3 Configuration Control Board (CCB).

C.3.2.3.3.1 The contractor shall establish and implement the use of a CCB to review engineering changes and recommend appropriate action prior to implementation.

C.3.2.3.3.2 The contractor shall provide the Government at least ten (10) days notice prior to convening the CCB so that if the Government chooses, a representative may participate. The contractor shall provide the Government with the engineering change proposal and a notice of revision at least ten (10) days prior to convening the CCB.

C.3.2.3.3.3 If the contractor generates a change against an item that is under Government Configuration Control, the contractor shall provide an engineering change proposal and notice of revision, in Government or contractor format, at least ten (10) days prior to the Government convening the CCB. No engineering changes shall be implemented without Government approval.

C.3.2.3.4 Material Review Board (MRB).

C.3.2.3.4.1 The contractor shall establish and implement the use of a MRB to determine the acceptance status of nonconforming parts and material used in fabrication of the electrical contact assemblies throughout the life of the contract.

C.3.2.3.4.2 The contractor shall provide the Government at least ten (10) days notice prior to convening the MRBs so if the Government chooses, a representative may participate.

C.3.2.3.4.3 If as a result of the MRB a change is generated against an item that is under Government Configuration Control, the contractor shall provide an engineering change proposal and notice of revision, in Government or contractor format, at least ten (10) days prior to the Government convening the CCB. The contractor shall participate on the Government CCB. No engineering changes shall be implemented without Government approval.

C.3.3 Serialization and Markings.

C.3.3.1 Serial Numbers. None.

C.3.3.2 Markings, Tags and Identification Plates.

C.3.3.2.1 The contractor shall insure that markings, tags or identification plates on the systems are consistently located on the exterior of the systems, securely attached or marked, uniform in shape and size, legible, and visible to the naked eye.

C.3.3.2.2. The contractor shall ensure that the information placed on the systems does not degrade systems performance.

C.3.4 Packaging

C.3.4.1 Special Packaging Instructions (SPIs).

C.3.4.1.1.The contractor shall package all parts entering the military distribution system in accordance with SPIs.

C.3.4.1.1.1 The contractor may utilize the Government SPIs provided for information purposes, modify the Government SPIs, or develop and use contractor SPIs for military packaging.

C.3.4.1.1.1.1 If the contractor elects to use the Government furnished SPIs, packaging validation testing is not required.

C.3.4.1.1.1.2 If the contractor elects to develop and use contractor SPIs, or if the Government furnished SPIs are modified, the contractor shall perform packaging validation testing to ensure that the packaging meets or exceeds the requirements cited on the Government furnished SPIs.

C.3.4.1.1.1.3 All changes shall be documented on an Engineering Change Proposal (ECP) and Notice of Revision (NOR) in contractor's format, and submitted to the Government for approval in accordance with C.3.3 Configuration Management.

C.3.4.1.1.1.3.1 If packaging validation testing is required, the contractor shall prepare and submit a Packaging Test Plan. The contractor shall conduct packaging testing in accordance with this contract.

C.3.4.1.1.1.3.2 The contractor shall submit copies of the modified Government SPIs or contractor developed SPIs to the Government within 30 days of the completion of the packaging testing.

C.3.4.2 Preservation, Unit Packing, Packing, Unitization and Marking.

C.3.4.2.1 The generic term packaging, shall include preservation, unit packing, packing, unitization, and marking. All items going into the military distribution system (as set forth in Section F, Deliveries) require military packaging, as defined in MIL-STD-2073-1. Items not going into military stock shall be packaged in accordance with standard commercial practices and shall be received at the final destination undamaged and in useable condition.

C.3.4.2.2 The packaging for the electrical contact assembly shall be military packaging, in accordance with the detailed requirements of MIL-STD-2073-1.

C.3.4.2.3 The contractor shall use, where practicable, advanced technology or innovative methods and materials for shipment and storage, for the purpose of effecting packaging economies. As a reference, the contractor may use MIL-STD-2073-1 – Standard Practice for Military Packaging; MIL-STD-129-Standard Practice, Marking for Shipment and Storage; and MIL-HDBK-304 – Packaging Cushioning Design, in the development of acceptable materials, containers, and processes for packaging. These documents may also be used for determining methods for preservation, unit packing, packing, unitization, and marking; procedures required to select packaging materials for packaging designs; and guidance in the preparation of packaging requirements expressed in the SPIs, and packaging drawings.

C.3.4.2.4 Protection. The contractor shall design all military packaging to provide unit protection in the Level A shipping configuration during shipment, handling and storage in accordance with the above work definition and MIL-STD-2073-1. The following storage and packaging rough handling conditions shall be met:

C.3.4.2.4.1 Storage. The contractor shall provide packaging capable of providing environmental protection to its contents for a period of 9 weeks under the following conditions:

Condition	Parameters
Desert	+160°F ± 2°F
Tropic	+113°F + 2°F 85 + 5% RH
Arctic	-50°F + 2°F
Cyclic	Three cycles, each cycle consisting of 1 week under each of the preceding conditions in sequence

C.3.4.2.4.2 Rough Handling. The contractor shall provide packaging capable of providing protection to its contents under the following rough handling conditions as specified in MIL-STD-810E, conducted sequentially:

Condition	Purpose
Secured Cargo Vibration	Test to simulate transport by truck, rail, aircraft, and ocean
Loose Cargo Vibration	Test to simulate field (off road) transports
Shock (drop)	Test to simulate packaging rough handling

C.3.4.3 Fabrication. The contractor shall fabricate prototypes of the packaging designs and conduct (1) packaging validation testing if required; and (2) packaging first article testing in accordance with the first article packaging inspection requirements as found in Section E of the contract (FAR Clause 52.209-3 Alt. I).

C.3.4.4 Hazardous Material Identification.

C.3.4.4.1 The contractor shall assure that the shipping configuration or container, as applicable, complies with Performance Oriented Packaging (POP), in accordance with Annex 1 Part 7 of the International Maritime Organization – International Maritime Dangerous Goods Code (IMO – IMDGC); Chapter 7 of the International Civil Aviation Organization – Technical Instructions for Safe Transportation of Dangerous Goods by Air (ICAO-TDGA); and 49 Code of Federal Regulation (CFR) Transportation, Parts 107-178 if the end item is or contains a regulated hazardous material.

C.3.4.4.2 The contractor shall design, mark, and certify the packaging in accordance with these documents. The contractor shall conduct all testing in accordance with ASTM D 4919 Testing of Hazardous Materials Packaging.

C.3.5 QUALITY ASSURANCE SYSTEM

C.3.5.1 Quality System.

C.3.5.1.1 The contractor shall implement, execute, and maintain a Quality System in accordance with International Standard Operation 9002 (ISO 9002) for the life of this contract.

C.3.5.1.2 The contractor may use an existing Quality System provided it meets acquisition needs and is acceptable to the Government. Registrars Accreditation Board (RAB) certification is not required for the performance of this contract.

C.3.5.2 Quality System Plan (QSP). The contractor shall utilize the QSP submitted in response to this solicitation and approved by the Government at contract award as the baseline for all quality program activities. The contractor shall update the QSP with all comments identified by the Government. The contractor shall make the approved plan available to the Government 30 days after contract award. The contractor shall obtain the written approval of the PCO prior to the implementation of the QSP and any subsequent changes. The contractor shall implement and maintain the QSP throughout the life of this contract.

C.3.5.3 Reduction of Latent or Incipient Defects. The contractor shall implement a process for the reduction of latent or incipient defects in the electrical contact assembly and its components.

C.3.5.4 First Article Testing (FAT). The contractor shall conduct FAT of the electrical contact assembly, and applicable military packaging, as defined in Section E of this contract.

C.3.5.4.1 FAT Test Plan. The contractor shall prepare and submit a detailed FAT test plan.

C.3.5.4.2 The contractor shall conduct FAT on eight (8) electrical contact assemblies. The contractor shall perform FAT in accordance with EA-PRF-2170.

C.3.5.4.3 The contractor shall ensure that all test personnel including subcontractors are knowledgeable on the operation of the CAM and be capable of properly performing the necessary operational checks as required during the conduct of the test.

C.3.5.4.4 The contractor shall package and transport all test hardware to and from all test sites.

C.3.5.4.5 FAT Report

C.3.5.4.1 The contractor shall prepare and submit a FAT Report.

C.3.5.4.2 The contractor shall include all test data to include but not limited to actual dimensional, physical, and electrical test results.

C.3.5.4.3 The contractor shall provide certification of materials and components as an appendix to the FAT Test Report.

C.3.5.5 Production of Electrical Contact Assembly. The contractor shall not initiate production or fabrication of hardware until all FAT test results have been approved by the Government.

Attachment
004

Packaging Requirements Sheet
(Special Packaging Instructions) DS6411

PRON: C40AAO02 DATE: 21 FEB 2001

NSN: 5999-01-383-2792

MILSTRIP: SUE LERCH/28202

A. Military preservation, packing, and marking for the item identified above shall be accomplished in accordance with the specific requirements identified below, all the applicable requirements of MIL-STD-2073-1, Revision D, Date 15 DEC 99, and the Special Packaging Instruction contained in the TDP.

PRESERVATION: MILITARY
LEVEL OF PACKING: B
QUANTITY PER UNIT PACKAGE: 001
SPI NUMBER P442-726, REV. C, DATED 17 MAY 01

B. Unitization: Shipments of identical items going to the same destination shall be palletized if they have a total cubic displacement of 50 cubic feet or more unless skids or other forklift handling features are included on the containers. Pallet loads must be stable, and to the greatest extent possible, provide a level top for ease of stacking. A palletized load shall not exceed 4,000 pounds and should not exceed 52 inches in length or width, or 54 inches in height. The load shall be contained in a manner that will permit safe handling during shipment and storage.

C. Marking: In addition to any special markings called out on the SPI, all unit packages, intermediate packs, exterior shipping containers, and, as applicable, unitized loads shall be marked in accordance with MIL-STD-129 Revision N, Date 15 May 97, including bar coding iaw ANSI/AIM-BC1, Uniform Symbology Specification Code 39.

D. This SPI has been validated and the method of preservation/packing has proven successful in meeting the needs of the military distribution system, including indeterminate storage and shipment throughout the world. Special instructions and/or tailoring of the SPI is detailed in the Supplemental Instructions in Paragraph E below. A prototype package is required to validate the sizes and fit requirements of the SPI. Minor dimensional and size changes are acceptable provided contractor provides the PCO and ACO with notification 60 days prior to delivery. Any design changes or changes in the method of preservation that provide a cost savings without degrading the method of preservation or packing or affecting the serviceability of the item will be considered and responded to within 10 days of submission to PCO and ACO. Government reserves the right to require testing to validate alternate industrial preservation methods, materials, alternate blocking, bracing, cushioning, and packing.

E. SUPPLEMENTAL INSTRUCTIONS: DELETE MIL-P-116 AND REPLACE WITH MIL-STD-2073-1.

F. THE GROSS WEIGHT AND TOTAL QUANTITY PER PALLET SHALL BE PLACED ON A MARKING BOARD/PANEL AND SECURELY ATTACHED ON TWO ADJACENT SIDES.